



US 20100275982A1

(19) **United States**(12) **Patent Application Publication**  
**Abbott et al.**(10) **Pub. No.: US 2010/0275982 A1**(43) **Pub. Date: Nov. 4, 2010**(54) **GROUP IV NANOPARTICLE JUNCTIONS  
AND DEVICES THEREFROM****Publication Classification**(76) Inventors: **Malcolm Abbott**, Sunnyvale, CA  
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Altos, CA (US)(51) **Int. Cl.**  
**H01L 31/0352** (2006.01)(52) **U.S. Cl. .... 136/255; 257/E31.033; 977/773;**  
977/948

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**Washington, DC 20007 (US)**(21) Appl. No.: **12/029,838**(22) Filed: **Feb. 12, 2008****Related U.S. Application Data**(60) Provisional application No. 60/969,887, filed on Sep.  
4, 2007.(57) **ABSTRACT**

A device for generating electricity from solar radiation is disclosed. The device includes a wafer doped with a first dopant, the wafer including a front-side and a back-side, wherein the front-side is configured to be exposed to the solar radiation. The device also includes a fused Group IV nanoparticle thin film deposited on the front-side, wherein the nanoparticle thin film includes a second dopant, wherein the second dopant is a counter dopant. The device further includes a first electrode deposited on the nanoparticle thin film, and a second electrode deposited on the back-side, wherein when solar radiation is applied to the front-side, an electrical current is produced.

**PARTICLE HOMOGENEOUS EMITTER SOLAR CELL**